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 ... wi in the j-th document dj, and d1 is the number of documents in which the ... clustering method based on text data drawn from web pages should take into account the following ... As both considerations are equally important, these proportions should be accounted for separately. ...  
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EK Cromley - Annual Review of Public Health, 2003 - annualreviews.org  
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... access demands can be supported by the DEAFIN system towards a variety of user groups ... system, apito manage and provide access to all the regional relevant information in ... to external DBMSs, \* the system should be able to handle and generate XML documents, \* the system ...

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... 1999.) All of the issues identified by residents as the most important matters facing ... Land Systems Group, 395 Del Monte Center #150, Monterey, California 93940, 831-633-6445 or 831 ... GIS Advisory Board was organized to counsel the study process, to review documents, and to ...

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K Ganguli - 1994 · Wiley Online Library

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... Thomas W. Sanchez Center for Urban Studies, Transportation Research Group Portland State University, Portland ... areas **into** the suburbs, essentially reversing the traditional public transportation patterns. ... **GIS** is an important technology that is increasingly being used to support ...  
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CA Quiroga ... - *Transportation Research Part C: Emerging ...*, 1998 - Elsevier  
... It **documents** the data collection, data reduction, and data reporting procedures, as well as ... For discussion purposes, these techniques can be **grouped** **into** two categories: roadside techniques and ... This is particularly important if there are interchanges or intersections along the ...  
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PD Cappellini - US Patent Appl. 20030014266, 2002 - [freepatentsonline.com](#)  
... [0086] Transport Path Attributes—A group of attributes ... total, or partial part of the route that has been input as a planned itinerary by the service provider **into** the system. ... 0105] Generation (G)—An attribute used to describe the vectors, waypoints or waypoint attributes **relevant** to a ...  
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M Monmonier - *Bringing geographical information systems **into** ...*, 2000 - [books.google.com](#)  
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... Many of the concepts and principles introduced here are **relevant** to all **GIS** users, but the ... data at conventional geographic scales of measurement. Means of linking items of attribute information **into** same spatial ... National Health Service (UK) National Joint Utilities Group (UK) xix ...  
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... The rest of the agency will be very happy to know that the **group** is involved in the new technology, but equally ... In particular, it is important in mapping that common borders be maintained so that "slivers" do not appear (small gaps or ... Features are organized **into** layers in a **GIS**. ...  
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MIT English, JH Penick... - 1999 - [www.ra.utk.edu](http://www.ra.utk.edu)

... The growth plan must include, at a minimum, documents describing municipal corporate limits as well as urban growth boundaries ... In addition, however, others may or should play an important role ... (5) The cost of the process may be covered by fees charged to member groups. ...

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SC Kumar, D4 Dynamics... - US Patent App... - 2003 - [freepatentsonline.com](http://freepatentsonline.com)

... takes considerable time for the GIS operator to provide a list of relevant existing policies ... data (eg. converting Tagged Image File Format (TIFF) to Joint Photographic Expert Group (JPEG) format ... Although not shown, other types of data may also be input into the enterprise spatial ...

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**The State of Government Cartography in 1998**

JL Morrison - Journal article by Joel L. Morrison; Cartography and ... 1999 - [questia.com](http://questia.com)

... Linux Documents. The group has produced a RFC for integrating geographic support into VRML as well as a proposal for introducing double-precision floating-point

support to better represent geographic coordinates. Greg ...

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**The National Science Foundation National Center for Geographic Information and Analysis**

FA RICNAUD - International Journal of Geographical Information ... 1987 - Taylor & Francis

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RC Harmon - 1993 - scholars.library.regionstate...

... contributed greatly to this area of early, manual GIS research and was important in introducing further work in the use of ... Peucker and Chrisman (1975) conducted some of the earliest research into the ... GIS, one of the first topologically complete GIS. A ...

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Water Resources Institute (US). Task Committee on the ... - 2003 - books.google.com

... Decision Quality Objectives (rather than Data Quality Objectives) should be developed that are related to the specific circumstances of a site and take into consideration potential risks, exposure routes, and concerns. Monitoring parameter lists should be relevant to the ...

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R Brandt - 1998 - books.google.com

... from the Unit for Human Resources Information and Planning in the HSRC's **Group Human Resources** ... The study highlighted the important contribution of **GIS**, not only as a very useful ... by the incorporation of data-mining techniques (such as neural networks) **into spatial analyses** ...  
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W.H. Kraft - Remote sensing for transportation products and ... - 2003 - books.google.com  
... Government agencies are the largest potential customer group ... I'm going to organize my comments into three areas ... have been a lot of improvement and a lot of progress over the last year in the flow area, but beyond the technical advancements, even more important are the ...

#### Method, system, and program for an improved enterprise spatial system

TA Von Kaenel, DN Lymnæs ... - US Patent App. ... 2003 - freepatentsonline.com  
... 201 to contain the logic to convert and, possibly, combine raw spatially referenced data **into** viewable data ... 0022] Yet another problem is that Geographic Information Systems (**GIS**) require data ... same application need to be run, each working with a different set or **grouping** of data ...  
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M Gruteser, D Grunwald ... - ... at the 1st international conference on ... 2003 - portal.acm.org

... To be effective, the location anonymizer requires location-based services that are used with ... on a Java server platform and evaluated them using automotive traffic simulations based on US ... transportation network information at the city level in the Spatial Data Transfer Standard ...

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## A density-based algorithm for discovering clusters in large spatial databases with noise

M Ester, HP Kriegel, J Sander, ... - ... on Knowledge Discovery and Data ... 1996 - aist.ac.org

... from the US Geological Survey's Geographic Names Information System, together with their location ... Clustering algorithms are attractive for the task of class identification in spatial databases. ... the clustering algorithm DBSCAN which relies on a density-based notion of ...

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## (PDF) STING: A statistical information grid approach to spatial data mining

W Wang, J Yang, ... - ... International Conference on Very Large Data ... 1997 - Citeseer

... distance is chosen as the value of Eps and the resulting clustering quality is ... The distribution type is still NORMAL based on the following: Since there are 210 points ... AND price RANGE (15000, 300000) WITH PERCENT (0.7, 1) AND AREA (100, -) AND LOCATION California ...

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## Density-based clustering in spatial databases: The algorithm gdbcscan and its applications

J Sander, M Ester, HP Kriegel, ... - Data Mining and Knowledge ... 1998 - Springer

... is possible, i.e. performing a selection 'on the fly' while clustering the database. ... the selection first under certain circumstances because GDBSCAN can use existing spatial index structures ... define density-connected sets analogously to the definition of density-based clusters in ...

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## WaveCluster: a wavelet-based clustering approach for spatial data in very large databases

G Shekhar, L S Chatterjee, ... - The VLDB Journal, 2000 - Springer

... WaveCluster: a wavelet-based clustering approach for spatial data ... All the grid-based approaches for clustering spatial data suffer from the modifiable areal unit problem (MAUP) first addressed by Openshaw in 1977, and Openshaw and Taylor in 1981 [Ope77, OT81] ...

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## [CITATION] Spatial clustering methods in data mining: A survey

J Han, M Kamber, ... - Geographic Data Mining and Knowledge Discovery, ... 2001

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## Detecting features in spatial point processes with clutter via model-based clustering

A Dasgupta, ... - Journal of the American Statistical Association, 1998 - JSTOR

... practice; see Muise and Smith (1992).] A similar problem that we also consider is to determine the location of seismic ... 2. METHODOLOGY 2.1 Model-Based Clustering Banfield and Raftery (1993) proposed a method for model-based clustering of d-dimensional data based on a ...

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G Shekhar, L S Chatterjee, ... - ... on Very Large Data Bases, 1998 - Citeseer

... Let  $\mathbf{f}_i = (w_i, 0_2, \dots, v_d)$  denote a unit in the original feature space where  $w_i, 1 < i \leq 5$ ,  $1 \leq 5$ ,  $d$ , is the location of the unit on the axis  $X_i$  of the feature space. ... The label of each unit is determined based on the labels of its neighboring units [Hor88]. ... Clustering Arbitrary Shapes ...

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## Discovering associations in spatial data—an efficient model-based approach

V Estivill-Castro, ... - ... in Knowledge Discovery and Data Mining, 1998 - Springer

... 3. M. Ester, HP Kriegel, J. Sander, and X. Xu. A density-based algorithm for discovering clusters in large spatial databases with noise. ... Mining spatial data via clustering. Technical Report #5/97, FIT, QUT, Brisbane 4000, Australia, 1997. ... Location-allocation for small computers. ...

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S Shekhar, F Zhang, Y Huang, ... - Data mining, Next ..., 2003 - spatial.cs.umn.edu

... as shown in Figure 3.2(c). Other contiguity metrics can be designed to model neighborhood relationships based on distance ... studies of four important output patterns for spatial data mining: predictive models, spatial outliers, spatial co-location rules, and spatial clustering. ...

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A Malmberg - Environment and Planning C ... 2002 - environmentandplanning.com

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## Robust distance-based clustering with applications to spatial data mining

V Estivill-Castro, ... - *Algorithmica*, 2001 - Springer

... Since C and C differ on only one point, with appropriate structures for point location, O(n log k) steps are sufficient to find repIs, C for all s ... S (repIs, C) is either unchanged or the new ... Robust Distance Based Clustering with Applications to Spatial Data Mining 223 ...  
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## Spatial clustering for data mining with genetic algorithms

V Estivill-Castro, AT Martay - ... of the International ICSC Symposium on ... 1997 - Citeseer

... Our results open the possibility for even more competitive genetic search for medoid based clustering. 7 Acknowledgments ... Page 11. Spatial Clustering for Data Mining with a GA ... 1] G. Bianchi and R. Church. A non-binary encoded genetic algorithm for a facility location problem. ...  
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## Autoclust+: Automatic clustering of point-data sets in the presence of obstacles

V Estivill-Castro, ... - *Temporal, Spatial, and Spatio-Temporal Data* ... 2001 - Springer

... includes the number of clusters that reside in P (note that some clustering methods are ... tion rather than providing it), extent, scatter and size of each cluster, location in spatial ... Type II information includes causal factors and potential explanations based on data in other layers ...  
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## Data clustering: a review

AK Jain, MN Murty, ... - ACM computing surveys (CSUR), 1999 - portal.acm.org

... The field of spatial analysis of point patterns [Ripley 1988] is also related to cluster ... A review of image segmentation by clustering was reported in Jain and Flynn [1996]. ... Comparisons of various combinatorial optimization schemes, based on experiments, have been reported ...  
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## DBRS: a density-based spatial clustering method with random sampling

X Wang, ... - Advances in Knowledge Discovery and Data ... 2003 - Springer

... Region growing is heavily based on not only the location of pixels but also the non-spatial attributes or 'a priori' knowledge [9] ... (We refer to each spatial data object in a dataset as a point.) In this paper, we introduce the problem of a-pproximate density based clustering. ...  
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## BIRCH: an efficient data clustering method for very large databases

T Zhang, K Ramakrishnan, ... - ACM SIGMOD Record, 1996 - portal.acm.org

... So it is still unable to scale well with large N. Clustering has been recognized as a useful spatial data mining method recently. [NH94] presents ('LARAN,\$ that is based on randomized search, and proposes that ('LARAN,\$ outperforms traditional clustering al ...  
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J Han, K Koperski, ... - ACM SIGMOD Record, 1997 - portal.acm.org

... relational databases contain spatial information as well, such as the residence of a customer or the location of a ... Concept hierarchies can be created by users or domain experts, but also generated automatically based on value distribution or some clustering algorithms. ...  
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## Fast approximations for sums of distances, clustering and the Fermat-Weber problem\* 1

P Boesa, A Maheshwari, ... - Computational Geometry, 2003 - Elsevier

... 7. Estivill-Castro and Houle , Robust distance-based clustering with applications to spatial data mining. Algorithmica 30 (2) (2001), pp. 216–242. Full Text via CrossRef | View Record in Scopus | Cited by 18 in Scopus (13). 8. RL Francis. Facility Layout and Location: An Analytical ...  
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## Constraint-based clustering in large databases

A Tung, J Han, L Lakshmanan, ... - Database Theory—ICDT 2001, 2001 - Springer

... Clustering methods can be categorized into partitioning methods [KRR90, NH94], hierarchical methods [KR90] ... methods [EKS96], grid-based methods [WYM97, AGGR98], and model-based methods [Hak00] ... somewhat similar to the CC problem is the facility location problem ...  
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## Mining frequent neighboring class sets in spatial databases

Y Nishimura - ... conference on Knowledge discovery and data mining, 2001 - portal.acm.org

... for finding important spatial pattern called frequent neighboring class sets from spatial databases. ... sets are not just clusters that can be found by conventional clustering algorithms ... class sets can be utilized for many applications such as location-based services, development ...  
Cited by 13 - Related articles - Bl. Direct - All 12 versions

Cited by 13 - Related articles - Bl. Direct - All 12 versions

### Streaming-data algorithms for high-quality clustering

L O'Callaghan N Mishra, A Meyerson... - Data Engineering..., 2002 - ieexplore.ieee.org  
... CG algorithm given in Section 3.2.1, except that CG solves the facility **location** variant which is more desirable since in practice one does not know the exact number of clusters k (and facility location allows as ... Other types of clustering include density-based methods, eg ...  
Cited by 191 - Related articles - All 16 versions

[PDF] from psu.edu

### Spatial data mining: database primitives, algorithms and efficient DBMS support

M Ester, A Kriegel, HP Kriegel... - Data Mining and Knowledge..., 2000 - Springer  
... 195 Figure 1. Regions of pollution around a planned industrial plant (Bill, 1991). Figure 1 depicts a map used in the assessment of a possible **location** for a new industrial plant. ... 203 Figure 6. Illustration of a single **scan clustering**, using a distance based neighborhood. ...  
Cited by 103 - Related articles - All 16 versions

[PDF] from psu.edu

### An updated bibliography of temporal, spatial, and spatio-temporal data mining research

J Roddick, K Hornsby,... - Spatial, and Spatio-Temporal..., 2001 - Springer  
... Fast Randomized Algorithms for Robust Estimation of Location. In Proc. ... Estivill-Castro, V. and Lee, I. (2000). AUTOCLUST+: Automatic Clustering of Point-Data Sets in the Presence of Obstacles. ... Discovering associations in spatial data-an efficient medoid based approach. ...  
Cited by 36 - Related articles - All 7 versions

### Second-order analysis of spatial clustering for inhomogeneous populations

PJ Diggle... - Biometrics, 1991 - JSTOR  
... 100 11 52 69 98 97 100 200 12 57 82 98 100 100 Our power study is based on 100 replicate simulations of events in A, the unit square. ... The **location** of each event is taken as the centroid of the post code of home address. ... suggests mild evidence of **spatial clustering**. ...  
Cited by 195 - Related articles - All 3 versions

### Model-based clustering, discriminant analysis, and density estimation

C Fraley... - Journal of the American Statistical Association, 2002 - ASA  
... We give examples from medical diagnosis, minefield detection, cluster recovery from noisy data, and **spatial** density estimation. Finally, we mention limitations of the methodology and discuss recent developments in model-based clustering for non-Gaussian data, high ...  
Cited by 812 - Related articles - All 11 versions

[PDF] from psu.edu

### BIRCH: A new data clustering algorithm and its applications

T Zhang, R Ramakrishna... - Data Mining and Knowledge..., 1997 - Springer  
... 2.2 Distance-Based Most data clustering algorithms in Statistics are distance-based approaches. ... Hence none of them can scale up linearly with stable quality. **Data clustering** has been recognized as a useful **spatial** data mining method recently. ...  
Cited by 276 - Related articles - All 17 versions

[PDF] from psu.edu

### [PDF] Spatial disease clusters: detection and inference

M Kulldorff... - Statistics in medicine, 1995 - satcsm.us  
... In this paper, we present a method that detects the **location** of possible disease clusters in a population with ... Both have been applied to disease **clustering**. One approach uses a test statistic based on measuring distances between the disease cases while the other is based on ...  
Cited by 530 - Related articles - All 14 versions

[PDF] from satcsm.us

### (book) Geographic data mining and knowledge discovery

HJ Miller... - 2001 - books.google.com  
... between 2-D image and feature space 183 7.10 Visualization of the **clustering** result for ... 8.12 CLIQUE: Determining potential region with dense units 224 8.13 Planning the **location** of ATMs ... 9.8 Finding outliers by the speed of motion 249 9.9 Discovering outliers based on speed ...  
Cited by 382 - Related articles - All 5 versions

[PDF] from utah.edu

### Data mining: An overview from a database perspective

MS Chen, J Han,... - Data Engineering, IEEE Transactions..., 1996 - ieexplore.ieee.org  
... databases, transaction databases, object-oriented databases, deductive databases, **spatial** databases, temporal ... characteristic rules, classification rules, discriminant rules, **clustering**, evolution, and ... underlying data mining approach into generalization-based mining, pattern ...  
Cited by 1932 - Related articles - Library search - All 12 versions

[PDF] from psu.edu

### Using a neural network and spatial clustering to predict the location of active sites in enzymes

A Guttenberg, GJ Bartlett... - Journal of molecular biology, 2003 - Elsevier  
... Here, a neural network is trained to identify the catalytic residues found in enzymes, based on an ... **spatial clustering** of the highly scoring residues are then used to predict the **location** of the ... **Spatial clustering** of the network results provides a reliable way of finding likely active sites ...  
Cited by 126 - Related articles - All 15 versions

[PDF] from wacom.ca

### [PDF] AMOEBA: Hierarchical clustering based on spatial proximity using Delaunay diagram

V Estivill-Castro,... - the 9th International Symposium on Spatial Data..., 2000 - Citeseer  
... of **spatial** entities is that they are correlated with each other in the sense of time, **location**, theme and ... Wang et al., 1997) and STING+ (Wang et al., 1999) also use a statistical information based on a ... These compact values can be used for **clustering** to draw a good approximation. ...  
Cited by 10 - Related articles - All 15 versions

[PDF] from psu.edu

[Cited by 144](#) • Published in [Proc. Int'l. Conf. on Data Min.](#) • View in [HTML](#) • All 2 versions

**[PDF] X-means: Extending K-means With Efficient Estimation of the Number of Clusters**

D Pelleg, ... - [ICML-2000](#), 2000 - Citeseer

... We first describe the naive k-means algorithm for producing a clustering of the points in the ... In case a centroid location changes, a new element has to be inserted and it is ... It uses statistically-based criteria to make local decisions that maximize the model's posterior probabili ...

[Cited by 1071](#) • [Related articles](#) • [View in HTML](#) • All 16 versions

[\[PDF\]](#) [from psu.edu](#)

**Partition based spatial-merge join**

JM Patel, ... - [ACM SIGMOD Record](#), 1998 - portal.acm.org

... The study also investigates the effect of clustering the join inputs. ... In [Ore66, OM80], Orenstein proposes an approach based on approximate geometry, wherein the universe of the ... Each pixel, which is described by its spatial location, is transformed into a 1-dimensional domain ...

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[\[PDF\]](#) [from psu.edu](#)

**[PDF] Integrated analysis of spatial data from multiple sources: using evidential reasoning and artificial neural network techniques for geological mapping**

P Gong - [Photogrammetric Engineering and Remote Sensing](#), 1998 - ebsqinfo.com

... Many clustering algorithms and the MLC can be applied only to data at ratio and interval measurement scales. ... Classification Based on Evidential Theory Let a vector  $X = (x_1, x_2, \dots)$  denote a set of observations or measurements made at a particular location. ...

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[\[PDF\]](#) [from slsa.ca](#)

**Exploratory spatial data analysis techniques for examining urban crime**

AJ Murray, I McCollig, JS Westcott, ... - [British Journal of Criminology](#), 2001 - CCGS

... Information on the 99 police stations was provided by Queensland Police. Information on the location of the 62 fire stations was provided by Queensland Fire and Rescue Authority. ... FIG. 4 Property crimes and spatial features in Brisbane Page 11. Optimization-based Clustering ...

[Cited by 94](#) • [Related articles](#) • [All 12 versions](#)

[\[PDF\]](#) [from cuny.edu](#)

**Distributed data clustering can be efficient and exact**

G Corma, ... - [ACM SIGKDD explorations newsletter](#), 2000 - portal.acm.org

... remote portions of the dataset over the poor connection to a central location for (parallel) ... K-Harmonic Means: A Spatial Clustering Algorithm with ... Algorithms using Sufficient Statistics for Efficient Parallel Speed-up: Demonstrated for Center-Based Data Clustering Algorithms," 4th ...

[Cited by 32](#) • [Related articles](#) • [All 26 versions](#)

[\[PDF\]](#) [from hp.com](#)

**[PDF] Clustering algorithms for spatial databases: A Survey**

E Kalathur - [PDF](#) is available on the Web, 2001 - Citeseer

... In addition, spatial location, and implicit information about the location of an object, may be exactly the information that can be extracted through spatial data mining. [Fay96] ... 4.3 DBCLASD DBCLASD (Distribution Based Clustering of Large Spatial Databases) [XEK98], is ...

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[\[PDF\]](#) [from psu.edu](#)

**Detecting graph-based spatial outliers: algorithms and applications (a summary of results)**

S Shekhar, CT Lin, ... - [on Knowledge discovery and data](#), 2001 - portal.acm.org

... cost models for outlier detection queries, and compare underlying data storage and clustering methods that ... We are interested in discovering the location of stations whose measurements are inconsistent with those of their graph-based spatial neighbors and the ...

[Cited by 104](#) • [Related articles](#) • [All 26 versions](#)

[\[PDF\]](#) [from psu.edu](#)

**Hierarchical model-based clustering for large datasets**

C Posse - [Journal of Computational and Graphical Statistics](#), 2001 - ASA

... Section 2 reviews the general framework of model-based clustering. ... Section 4 uses the MST-HMCLUST-EM approach to analyze simulated data and two large, real datasets ... In the latter case, local smoothers are combined with this algorithm to integrate the spatial information in ...

[Cited by 103](#) • [Related articles](#) • [All 19 versions](#)

[\[PDF\]](#) [from washington.edu](#)

**Knowledge-based image retrieval with spatial and temporal constructs**

WW Chin, CC Hsu, AF Cardenas, ... - [Knowledge and Data](#), 1998 - ieexplore.ieee.org

... These computed features will be classified automatically with clustering algorithms into Type Abstraction Hierarchies ... of the visual entities in the query are extracted and compared based on the ... descriptors, such as size and roundness for the shape category, location for the ...

[Cited by 103](#) • [Related articles](#) • [All 11 versions](#)

[\[PDF\]](#) [from mendeley.com](#)

**Local indicators of spatial association—LISA**

L Anselin - [Geographical analysis](#), 1995 - Wiley Online Library

... is a simple sum over the subscript  $i$ , a local Gamma index for a location  $i$  may ... the data sources, see Anselin and O'Loughlin (1992). The suggestion of spatial clustering of similar ... 0.002) 6 These statistics are computed for a row-standardized spatial weights matrix based on first ...

[Cited by 2033](#) • [Related articles](#) • [All 16 versions](#)

[\[PDF\]](#) [from mendeley.com](#)

**Spatial clustering for inhomogeneous populations**

J Currie - [Journal of the Royal Statistical Society Series B](#) { ... }, 1990 - JSTOR

... the moment, from all individuals at risk in  $\mathcal{N}$  select at random a set of  $n_1$  'controls' and denote

their **location** by (y1 ... 1990) **SPATIAL CLUSTERING** ... General Rank-based Procedures The previous procedures are all **based** on the sequence of zeros and ones determined from the case ...

Cited by 304 · Related articles · All 5 versions

### Improved ant-based clustering and sorting in a document retrieval interface

J Hanafi ... Parallel Problem Solving from Nature—PPSN VIII, 2002 - Springer

... the query results by browsing the documents, which are accessed through a mouse click on their map **location** ... with similar contents should be in close proximity, while differences in subject should be reflected by **spatial distance** ... Improved Ant-Based Clustering and Sorting 915 ...

Cited by 167 · Related articles · All 5 versions

[PDF] from cs.sfu.edu

### Mean shift based clustering in high dimensions: A texture classification example

B Georgescu, I Shimshoni ... Computer Vision, 2003. ... 2003 - iecepsite.ieeexplore.org

... search in high dimensions for general datasets [10, 11] and for **clustering** data [9, 14]. We use the approximate nearest neighbor algorithm **based** on locality-sensitive hashing (LSH) [7] and ... mean shift iterations (5) require a neighborhood query around the current **location**  $y$ . The ...

Cited by 225 · Related articles · All 32 versions

[PDF] from cs.sfu.edu

### CHAPTER EIGHT The Moran scatterplot as an ESDA tool to assess local instability in **spatial association**

L Anselin ... Spatial analytical perspectives on GIS, 1996 - books.google.com

... lower left quadrants represent positive **spatial association**, in the sense that a **location** is surrounded ... The suggestion of **spatial clustering** that follows from a visual inspection of this map is ... This statistic is computed for a **spatial weights matrix based** on distance contiguity, using ...

Cited by 493 · Related articles · Library Search · All 3 versions

[PDF] from cs.sfu.edu

### Spatial econometrics

L Anselin ... A companion to theoretical econometrics, 1988 - Wiley Online Library

... Typically, they are **based** on the geographic arrangement of the observations, or contiguity. ... This is a full matrix, which implies that shocks at any **location** affect all other locations ... has a certain intuition, in the sense that it incorporates an explicit notion of **spatial clustering** as a ...

Cited by 517 · Related articles · Library Search · All 31 versions

[PDF] from psu.edu

### Peer-to-peer **spatial queries** in sensor networks

M Demiris... 2003 - computer.org

... Besides the **location-based** queries, the proposed framework can be utilized for other multi-dimensional queries over ... program that constructs a hierarchical partitioning of a sensor network **based** on the ... to  $[n, N]$  (where  $N > 2^n$ ) tolerance factor in our **clustering** program, LOCI ...

Cited by 104 · Related articles · All 22 versions

[PDF] from psu.edu

### Plant size and **clustering** of manufacturing activity

SH Sweeney ... Geographical Analysis, 1998 - Wiley Online Library

... set of studies by regional scientists of industrial complexes in the 1970s and a point pattern analysis of manufacturing **location** patterns in ... Given **data** with a suitably detailed **spatial resolution**, the most powerful statistical methods for examining **clustering** are **based** on the ...

Cited by 49 · Related articles · All 2 versions

[HTML] from nih.gov

### Fine-scale mapping of disease genes with multiple mutations via **spatial clustering** techniques

J Molitor, P Marjoram ... The American Journal of Human Genetics, 2003 - Elsevier

... Furthermore, our **clustering** approach has the potential to allow us to detect the presence of multiple ... The metric is **based** upon the assertion that the difference was due to a mutation at ... Another modification would be to define a series of probabilities at each marker **location**  $p$  ...

Cited by 36 · Related articles · All 5 versions

[PDF] from psu.edu

### Spatial data mining: A database approach

M Ester, HP Kriegel ... Advances in spatial databases, 1997 - Springer

... extension. The explicit **location** and extension of objects define implicit relations of **spatial neighborhood** ... objects. Step 4 is **based** on the neighborhood graphs for the special neighborhood relations, esp. specialgraph ... 4.2 Spatial Clustering ...

Cited by 263 · Related articles · All 13 · Direct · All 24 versions

[PDF] from psu.edu

### An optimal graph theoretic approach to **data clustering**: Theory and its application to image segmentation

Z Wu... IEEE transactions on pattern analysis and machine ... 1983 - computer.org

... computed feature vectors together. Often little or no **spatial** information about the image is used. Here a new method for image segmentation is developed **based** on our **clustering** algorithm. This method effectively searches ...

Cited by 346 · Related articles · All 13 · Direct · All 22 versions

[PDF] from sc.edu

### Distributed clustering and local regression for knowledge discovery in multiple **spatial databases**

A Lazarevic, D Poljakac ... Proceedings of 8th European ... 2000 - Citeseer

... The proposed method is shown to be computationally efficient and fairly accurate when compared to an approach where all the **data** are available at a central **location**. ... 5. Sander J., Ester M., Kriegel H.-P., Xu X.: "Density-Based Clustering in Spatial Databases: The Algorithm ...

Cited by 33 · Related articles · View its HTML · All 12 · Versions

[PDF] from psu.edu

[PDF] [Algorithms and applications for spatial data mining](#)

M Ester, HP Kriegel ... - Geographic Data Mining and Knowledge ... 2001 - Citeseer

... traffic control or environmental studies. A **spatial database** contains objects which are characterized by a **spatial location** and/or extent ... We can support **clustering** algorithms by our database primitives if the **clustering algorithm is based on** ...

Cited by 124 - Related articles - View all HTML - All 12 versions

[PDF] from psu.edu

The spatial patterning of county homicide rates: An application of exploratory spatial analysis

SF Messner, L Anselin, RD Bauer ... - Journal of Quantitative ... 1999 - Springer

... research has demonstrated convincingly that knowledge about the **location** of criminal ... a nonrandom geographic distribution.7 The present paper examines **spatial clustering** of homicide ... Our analyses are based on the newly developed methodology of exploratory spatial data ...

Cited by 124 - Related articles - View all HTML - All 12 versions

[PDF] from wiley.com

[PDF] [A new method to measure spatial association for ecological count data](#)

JN Perry ... - Ecotoxicology, 2002 - ietherapy.net.uk

... the new measure is based on a comparison of the **spatial SADIE clustering** index of the two sets ... coefficient between the clustering indices of the two sets. The randomization method allows ... their **co-location** in particular subareas of each plot ...

Cited by 107 - Related articles - View all HTML - All 4 versions

[PDF] from hpcrc.ac.uk

[PDF] [Spatial data mining: progress and challenges survey paper](#)

K Koperski, J Adamiczki ... - Workshop on Research Issues on Data ... 1996 - Citeseer

... be described using two different properties, geometric and topological. For example, geometric properties can be **spatial location**, area, perimeter ... As for the efficiency concern, a new algorithm, called CL ARANS ( Clustering large Applications based uponRANDOM- ized ...

Cited by 100 - Related articles - View all HTML - All 12 versions

[PDF] from pau.edu

[CITATION] [Exploratory spatial data analysis and geographic information systems](#)

L Anselin - New tools for spatial analysis, 1994 - Luxembourg: Eurostat

Cited by 73 - Related articles - All 2 versions

[PDF] [Discovery of general knowledge in large spatial databases](#)

W Lu, J Han, BC Ooi - Proc Far East Workshop on Geographic ... 1993 - Citeseer

... in raster **data** is represented by  $\langle x, y \rangle$ , **intensity**, where  $(x, y)$  is the **spatial location** and intensity the nonspatial attribute value. ... Different from relational data clustering, which is usually based on the concept hierarchy of each single attribute, **spatial data clustering** is two ...

Cited by 124 - Related articles - View all HTML - All 12 versions

[PDF] from psu.edu

[Color image segmentation using density-based clustering](#)

C Ye, W Gao ... - icme, 2003 - computer.org

... Considering that an image can be regarded as a dataset in which each pixel has a **spatial location** and a color value, color image ... To discover the **spatial** connectivity of the pixels, **density-based clustering** is employed, which is an effective **clustering** method used in ...

Cited by 124 - Related articles - View all HTML - All 12 versions

[Local maximum filtering for the extraction of tree locations and basal area from high spatial resolution imagery](#)

M Wulder, KO Niemann ... - Remote Sensing of ... 2000 - Elsevier

... The ability to directly estimate the **location** of trees may improve estimates of stand density, volume, basal area, and canopy closure compared to estimates **based** on lower ... template matching (Pollock, 1999), morphology (Barbezat and Jacot, 1999), and **clustering** (Culvenor et al ...

Cited by 124 - Related articles - View all HTML - All 7 versions

[Spatial data management on a very large cadastral database](#)

PJM Van Oosterom, CHJ Lerriman - Computers, Environment and Urban ... 2001 - Elsevier

... highlights some innovative developments during the design of this database, eg the **Spatial Location Code** for ... unique object identifiers, integration of geometric and thematic attributes in one table, **spatial clustering**, spatial indexing, **SQL** based product development ...

Cited by 31 - Related articles - View all HTML - All 7 versions

[PDF] from gdms.nl

[How many clusters? Which clustering method? Answers via model-based cluster analysis](#)

C Fraley ... - The computer journal, 1998 - Icf Computer Socn

... An alternative is described in this paper. 2.2. Probability models for cluster analysis In **model-based clustering**, it is assumed that the **data** are generated by a mixture of underlying probability distributions in which each component represents a different group or cluster. ...

Cited by 201 - Related articles - View all HTML - All 10 versions

[PDF] from psu.edu

[SPRING: Integrating remote sensing and GIS by object-oriented data modelling](#)

G Camara, RCM Soza, UN Freitas ... - Computers & graphics, 1995 - Elsevier

... geocoding can be made by means of ground control point **location**, and images ... SPRING uses a segmentation algorithm which is **based** on region-growing methods [8 ... the segmentation is performed, various region classifiers can be executed: **clustering**, maximumlikelihood and ...

Cited by 601 - Related articles - View all HTML - All 10 versions

[PDF] from psu.edu

### A unified approach to detecting **spatial outliers**

S Shakhar, CT Lu... - *Geoinformatica*, 2003 - Springer

... outlier-degree of an object is determined by taking into account the **clustering** structure in ... as shown in figure 1(b). **Spatial** attributes are used to characterize **location**, neighborhood, and ... Graphical tests are based on the visualization of **spatial data** which highlights **spatial outliers** ...

Cited by 120 - Related articles - By Direct - All 16 versions

[PDF] from psu.edu

### A test for the coincident economic and **spatial clustering** of business enterprises

EJ Feser ... - *Journal of Geographical Systems*, 2000 - Springer

... as an "envelope" on industrial concentration from the "envelope" of general **location** advantages related to ... paper, we outline a method for accomplishing this that joins input-output **based** analysis of economic **clustering** with statistical methods for investigating **spatial clustering** ...

Cited by 103 - Related articles - By Direct - All 6 versions

[PDF] from duke.edu.cs

### Soil-landscape modelling using fuzzy c-means **clustering** of attribute **data** derived from a Digital Elevation Model (DEM)

S De Bruin ... - *Geoderma*, 1998 - Elsevier

... 2. **Location** of the sample points in UTM projection ... Since all these measures are **based** on information obtained from within the **clustering** process itself, they are so-called ... Conversely, external criterion analysis is **based** on variables not used in the cluster analysis (Milligan, 1996) ...

Cited by 79 - Related articles - All 5 versions

### Extracting **spatial** knowledge from the web

Y Mommolo, M Aono, MF Houle... - *Applications and the ...*, 2003 - ieeexplore.ieee.org

... The **clustering** method was applied to uniform random samples drawn from  $S_i$  of size  $|S_i|/2$  ... titles of 70 nearest web pages from the query element at which the cluster is **based**. ... We associate the keywords with web pages that contain **location** information to create a geospatial ...

Cited by 43 - Related articles - All 13 versions

[PDF] from psu.edu

### [PDF] Forecasting rural land-use change: a comparison of regression-and **spatial transition-based** models

DM Therribold... - *Geographical and Environmental ...*, 1998 - nrel.colostate.edu

... Actions such as **clustering** alter the footprint or **location** of development while maintaining or even ... Planning actions that modify the **location** of development can also modify the PDI $t+1$  ... In the **regression-based** model, the **spatial** linear regression results in a map of probability of ...

Cited by 65 - Related articles - By Direct - All 2 versions

### Methods, apparatus and **data** structures for providing a user interface, which exploits **spatial memory** to objects

M Czerwinski, SJ Durmaz, SE Dziedzic... - US Patent, 2001 - Google Patents

... Intelligent help may be provided to the user, as visual indicators, **based** on proximity **clustering** or **based** on matching ... 00 1— CO CD cc CO CC CO 00 o cc CD O CO "PUSHED" FLAG "MOVE" FLAG "SELECT" FLAG Lu > <2 ACTI FLA PRE-PUSH LOCATION NO LOCATI ...

Cited by 163 - Related articles - By Direct - All 2 versions

### Exploratory **spatial** data analysis of the distribution of regional per capita GDP in Europe, 1980–1995

J Gallo... - *Papers in regional science*, 2003 - Wiley Online Library

... are located in the European Union and the way this pattern of **location** has changed ... it cannot discriminate between a **spatial clustering** of high values and a **spatial clustering** of low ... Inference is **based** on the normal asymptotic approximation as suggested by Ord and Getis (1995) ...

Cited by 251 - Related articles - By Direct - All 18 versions

[PDF] from u.bourbonne.fr

### Second-order analysis of space-time **clustering**

PJ Diggle, AG Chetwynd... - *Statistical methods in ...*, 1995 - smm.sagepub.com

... For example, the **location** of a case might be taken as the principal residence of the ... Our analysis is **based** on the second-order properties of a general stationary, **spatial**-temporal ... scales, whether for estimation purposes or to construct an omnibus test of space-time **clustering** ...

Cited by 118 - Related articles - Library Search - All 5 versions

### Opening the black box: interactive hierarchical **clustering** for multivariate **spatial** patterns

D Guo, D Peugnet... - *Proceedings of the 10th ACM ...*, 2002 - portal.acm.org

... The input is a set of 2-D points  $V = \{v_1, v_2, \dots, v_n\}$ , where  $v_i = \langle x_i, y_i \rangle$  is a **location** in the ... 7] Estivill-Castro, V., and Lee, I., Amoeba: Hierarchical Clustering Based On Spatial Proximity Using Delaunay Diagram, 9th International Symposium on Spatial Data Handling, Beijing ...

Cited by 28 - Related articles - By Direct - All 3 versions

[PDF] from psu.edu

### Path based pairwise **data** **clustering** with application to texture segmentation

B Fischer, T Zellert... - *Methods in Computer Vision and Pattern ...*, 2001 - Springer

... the resulting two dimensional vector of modular values  $\langle x \rangle$  for each image **location**  $x$  comprises ... Although  $\langle x \rangle$  contains information about **spatial** relations of pixels in the neighborhood of  $x$ , it ...

5. Results of the novel path **based** **clustering** criterion on three toy **data** sets: a) arcs b) ...

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[PDF] from psu.edu

### Algorithm for **data** **clustering** in pattern recognition problems **based** on quantum mechanics

D Horn... - *Physical Review Letters*, 2001 - APS

[PDF] from psu.edu

... that they lie at high values (of order E). Classifying data points to clusters according to their topographic location on the 3 ... raw data in four dimensions, leading to misclassifications of the order of 15 instances, similar to the clustering quality of [4]. Distance-based QC formulation ...  
Cited by 221 - Related articles - All 15 versions

### The analysis of spatial association by use of distance statistics

A Getis, ... - *Geographical analysis*, 1992 - Wiley Online Library

...  $x_j$  values in the vicinity of point i differ systematically from the mean is there the opportunity to identify significant spatial concentration of ... The statistic is general in the sense that it is based on all pairs of values ( $x_i, x_j$ ) such that  $i \neq j$  ... No particular location  $i$  is fixed in this case. ...  
Cited by 711 - Related articles - All 3 versions

### [PDF] Integrating GIS and spatial data analysis: problems and possibilities\*

M Goodchild - *Environment + Planning A*, 1987 - geog.ucsb.edu

... In a spatial database errors arise in measuring both location and attribute properties ... a 'dragging windows' utility for exploratory analysis, particularly in large object-based spatial data sets (Haslett ... with others at Lancaster University, on the detection of spatial clustering in cancer ...

Cited by 217 - Related articles - All 2 versions

[PDF] from ucsb.edu

### [PDF] The world in your pocket-towards a mobile cartography

T Reichenbachs - *Proceedings of the 26th International Cartographic Conference*, 2001 - Citeseer

... are many different techniques: Bayesian (probabilistic), logic based, ML techniques, clustering, stereotype-based ... For a start the categorisation could be based on the user's information requests or ... context of this location, checking for events happening at this location and finding ...  
Cited by 54 - Related articles - View on HTML - All 3 versions

[PDF] from psu.edu

### The spatial clustering of science and capital: Accounting for biotech firm-venture capital relationships

WW Powell, KW Kopur, JL Bowne, ... - *Regional Studies*, 2002 - Taylor & Francis

... Page 3. The Spatial Clustering of Science and Capital 293 ... is a major research centre, the Center for Disease Control, a technology-based university, Georgia Tech, graphic concentration of the production location, why does the propensity for innovative activity to cluster ...  
Cited by 284 - Related articles - All 14 versions

[PDF] from bu.edu

### Density-connected sets and their application for trend detection in spatial databases

M Ester, HP Kriegel, J Sander, ... - *on Knowledge Discovery and Data* ... 1997 - aaai.org

... A different-based method calculates the difference of both, the observed influence region and the theoretical circular region, thus returning some region indicating the location of a possible deviation (see figure 2). An ... Density-Based Clustering in Spatial Databases: The ...  
Cited by 45 - Related articles - All 15 versions

[PDF] from psu.edu

### [PDF] Inferring urban land use from satellite sensor images using kernel-based spatial reclassification

MJ Barnsley - *Photogrammetric Engineering and Remote ...*, 1996 - asprs.org

... classes in a somewhat arbitrary and unpredictable manner, depending on the location of the ... by Wharon (1982a; 1982b) provides an early example of kernel-based spatial reclassification ... of the kernel is derived using an unsupervised, non-parametric clustering procedure ...  
Cited by 137 - Related articles - View on HTML - All 13 versions

[PDF] from asprs.org

### [PDF] Algorithms for mining distance-based outliers in large datasets

EM Knorr, ... - *of the International Conference on Very Large Data ...*, 1998 - Citeseer

... it is the exceptional cases/exceptional perhaps in monetary amount, type of purchase, timeframe, location, or some ... indirectly through the notion of clusters, and they are developed only to optimize clustering, but not ... 1.2 Distance-Based Outliers and Contributions of this Paper ...  
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### Geonotes: Social and navigational aspects of location-based information systems

F Esposito, P Persson, A Sandini, ... - *Ubicomp 2001*, ... 2001 - Springer

... we allow the user to regulate the tradeoff between curiosity about the spatial annotations and ... who bought the same books that you bought, also bought this one! Clustering users into ... In conclusion, our proposal for a location-based information system is social in two respects. ...  
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### Nonparametric maximum likelihood estimation of features in spatial point processes using Voronoi tessellation

D Allard, ... - *Journal of the American Statistical Association*, 1997 - JSTOR

... is derived using a natural partition of the space defined by the data themselves: the ... The methodology is tested on simulations and compared to a model-based clustering technique ... INTRODUCTION The problem of contouring clusters of points belonging to a spatial point process ...  
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### Fuzzy image clustering incorporating spatial continuity

AWC Low, SH Leung - *Vision, Image and Signal ...*, 2000 - ieeeexplore.ieee.org

... For pixel at location  $(l, s), g(r, t), (l, s)$  gives the Euclidean distance between feature vectors  $x$  ... We next perform colour-based image segmentation on some real colour images using our algorithm. ... The clustering is then done in the CIELAB space using the L, a and b colour compo ...  
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[Cited by 113](#) - Published articles - In: Direct - At 16 versions[An introduction to multisensor data fusion](#)Dl. Hegi ... - Proceedings of the IEEE, 1997 - [ieeexplore.ieee.org](http://ieeexplore.ieee.org)

... combined into a single concatenated feature vector which is input to pattern recognition approaches based on neural networks, clustering algorithms, or ... of sensor information, after each sensor has made a preliminary determination of an entity's location, attributes, and ...

[Cited by 541](#) - Related articles - In: Direct - At 5 versions[\[PDF\]](#) from [h1.scholar.google.com](http://h1.scholar.google.com)[A spatial scan statistic](#)M Kulldorff - Communications in statistics: theory and methods, 1997 - [statspan.org](http://statspan.org)...  $M = \sup_{\pi} \left| \sum_{i=1}^n S_i : \pi \in \Pi(Z) \right| > V(G) - v(Z) = \pi \left( 4^n - P(\text{All } m^*) \right)$ ;  $i = \inf_{\pi} \left| \sum_{i=1}^n S_i : \pi \in \Pi(Z) \right|$ . A similar argument holds for the Bernoulli case, based on equation ... The location of county seats were used as the geographical coordinates. ... Spatial clustering for inhomogeneous populations ...[Cited by 162](#) - Related articles - In: Direct - At 5 versions[\[PDF\]](#) from [statspan.org](http://statspan.org)[Distance and risk measures for the analysis of spatial data: a study of childhood cancers](#)

S Salvin, J Setubal ... - Social Sciences &amp; Medicine, 1992 - Elsevier

... of no association can be stated two ways: (a) all individuals are at equal risk regardless of their location on a ... cases occurring far from a point source of exposure diminish the power of an analysis based on distance ... geopolitical or transformed map) to detect spatial clustering. ...

[Cited by 30](#) - Related articles - At 11 versions[Local spatial statistics: an overview](#)A Getis ... - Spatial analysis: Modelling in a GIS ..., 1996 - [books.google.com](http://books.google.com)... and  $U_i$  are elements of matrices  $W$  and  $Y$ , and the focus is on the value of Tat location  $i$ . The ... The first is based on covariance, the next three on differences, and the G, statistics evaluate association by measuring ... We have identified the nature of the clustering in the vicinity of  $x_{33}$  ...[Cited by 22](#) - Related articles - At 2 versions[Linear flaw detection in woven textiles using model-based clustering](#)

JC Campbell, O Fraley, F Mustaigh ... - Pattern Recognition Letters, 1997 - Elsevier

... Textiles: Image processing; Computer vision; Inspection; Linear flaw detection; Model based clustering; Bayes factor ... significant scope for introducing intelligence to these phases: if location of automatically ... but which, due to their occurrence in an extended spatial pattern, are ...

[Cited by 72](#) - Related articles - At 17 versions[\[PDF\]](#) from [washington.edu](http://washington.edu)[A unified framework for model-based clustering](#)

S Zhong ... - The Journal of Machine Learning Research, 2003 - portal.acm.org

... The basic idea is that each data object is stochastically (and entirely, not fractionally) assigned to one of the K ... batch version of the SOM and Neural-Gas algorithms in the context of model-based clustering and show ... Let the map location of cluster y be  $\varphi_y$  and  $K(\varphi_y, \varphi_y) = \exp \dots$ [Cited by 156](#) - Related articles - In: Direct - At 23 versions[\[PDF\]](#) from [psu.edu](http://psu.edu)[Spatial and feature space clustering: Applications in image analysis](#)

J Matas ... - Computer Analysis of Images and Patterns, 1995 - Springer

... For comparison with the segmentation approach based on edge detection the image was first filtered with ... At some pixel location the depth measurements are not available ... We have proposed a novel approach to image segmentation, called feature and spatial domain clustering. ...

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AM Perez, MP Ward, P Torres ... - Preventive Veterinary Medicine, 2002 - Elsevier

... objectively determine if TB was clustered in Argentine cattle herds, and to identify the location of the most-likely clusters of bovine TB in Argentina based on 2 ... Study results support previously suspected clustering of TB in dairy districts of Argentina (PAHO/WHO, 1982) and ...

[Cited by 31](#) - Related articles - At 5 versions[Segmented trajectory based indexing and retrieval of video data](#)FI Barthi, AA Khokhar ... - Image Processing, 2003 ... - [ieeexplore.ieee.org](http://ieeexplore.ieee.org)

... follows in an effort to reduce the size (number of items) of data set ... to lie in the 0 to I range to make the representation invariant to object's spatial location. 2.2.2. Polynomial Coefficients based Clustering Instead of computing PCs from subtrajectories, clustering is first performed ...

[Cited by 51](#) - Related articles - At 13 versions[\[PDF\]](#) from [psu.edu](http://psu.edu)[Towards geo-spatial hypermedia: Concepts and prototype implementation](#)K Gronlund, PP Verheyen ... - Proceedings of the ... 2002 - [portal.acm.org](http://portal.acm.org)

... 7.2 The role of spatial parsing in geo-spatial hypermedia The Topos system includes a spatial parser [21] based on 3D proximity analysis ... Here the placement of objects is typically tied to a specific location, and abstract clustering and automatic arrangement may potentially ...

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A Ligertweg, AK Brueg ... - Landscaps and Urban ... 2001 - Elsevier

... after the claim is fulfilled or a situation is reached in which no location exists where ... The

implementation of SWARM is **based** upon the definition of so-called Modelswarms and ... The 'Municipality of Nijmegen' for example prefers a **clustering** of new urbanisation close to existing ...  
Cited by 54 - Related articles - All 2 versions

### Using the fractal dimension to cluster datasets

D Barbara, ... - conference on Knowledge discovery and data ... 2006 - portal.acm.org  
... Then, the information kept is not the actual **location** of points in the boxes, but rather, the number of points in each box. ... The second one is **based** on discarding low-populated boxes. ... WaveCluster: A Multi-Resolution Clustering Approach for Very Large **Spatial** Databases. ...

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### It's about time: A conceptual framework for the representation of temporal dynamics in geographic information systems

DJ Peuquet - Annals of the Association of American ... 1994 - Wiley Online Library  
... is **object-based** in the sense that all information, coordinate as well as non-spatial attribute information, is stored relative to specific geographic/cartographic objects, or features (roads, census tracts, etc.).) The raster or grid data model, conversely, is **location-based** in the ...  
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### An approach to active **spatial data mining** based on statistical information

W Wang, J Yang, ... - Knowledge and Data Engineering ... 2009 - ieexplore.ieee.org  
... Triggers specified in terms of changes to clusters (area, density, **location**, etc.) may be used to ...  
WANG ET AL: AN APPROACH TO ACTIVE **SPATIAL DATA MINING BASED ON STATISTICAL** ...  
An algorithm for incremental clustering for mining in a **data** warehousing environment is ...  
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### A **data mining** approach for **spatial modeling** in small area load forecast

HC Wu, ... - Power Systems, IEEE Transactions on, 2002 - ieexplore.ieee.org  
... calculus and/or significant specific domain knowledge [1]. The forecasting of the **location** for future ...  
B. Data Conversion Preference scores in the training set are computed **based** on historical ... The first step (KD1) uses a **clustering** technique to determine the major combinative ...  
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